

# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY (Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference NdP/89055	<b>FOR FURTHER ACTION</b>		See item 4 below
International application No. PCT/EP2004/014774	International filing date (day/month/year) 22 December 2004 (22.12.2004)	Priority date (day/month/year) 29 December 2003 (29.12.2003)	
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237			
Applicant NUOVO PIGNONE HOLDING S.p.A.			

1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 bis.1(a).
2. This REPORT consists of a total of 6 sheets, including this cover sheet.

In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.

3. This report contains indications relating to the following items:

<input checked="" type="checkbox"/> Box No. I	Basis of the report
<input type="checkbox"/> Box No. II	Priority
<input type="checkbox"/> Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
<input type="checkbox"/> Box No. IV	Lack of unity of invention
<input checked="" type="checkbox"/> Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
<input type="checkbox"/> Box No. VI	Certain documents cited
<input type="checkbox"/> Box No. VII	Certain defects in the international application
<input checked="" type="checkbox"/> Box No. VIII	Certain observations on the international application

4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis.2).

		Date of issuance of this report 03 July 2006 (03.07.2006)
The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland		Authorized officer  Yolaine Cussac  e-mail: pt11@wipo.int
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# PATENT COOPERATION TREATY

From the  
INTERNATIONAL SEARCHING AUTHORITY

REC'D 19 APR 2005  
PT/SA

WIPO PCT

To:

see form PCT/ISA/220

29/6

PCT

## WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing  
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference  
see form PCT/ISA/220

### FOR FURTHER ACTION

See paragraph 2 below

International application No.  
PCT/EP2004/014774

International filing date (day/month/year)  
22.12.2004

Priority date (day/month/year)  
29.12.2003

International Patent Classification (IPC) or both national classification and IPC  
F01D5/06

Applicant

NUOVO PIGNONE HOLDING S.P.A.

1. This opinion contains indications relating to the following items:

- Box No. I Basis of the opinion
- Box No. II Priority
- Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- Box No. IV Lack of unity of invention
- Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- Box No. VI Certain documents cited
- Box No. VII Certain defects in the international application
- Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



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WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.  
PCT/EP2004/014774

**Box No. I Basis of the opinion**

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.  
 This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
  - a. **type of material:**  
 a sequence listing  
 table(s) related to the sequence listing
  - b. **format of material:**  
 in written format  
 in computer readable form
  - c. **time of filing/furnishing:**  
 contained in the international application as filed.  
 filed together with the international application in computer readable form.  
 furnished subsequently to this Authority for the purposes of search.
3.  In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.  
PCT/EP2004/014774

**Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or  
industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes: Claims	5-7
	No: Claims	1-4,8-10
Inventive step (IS)	Yes: Claims	5-7
	No: Claims	1-4,8-10
Industrial applicability (IA)	Yes: Claims	1-10
	No: Claims	

2. Citations and explanations

see separate sheet

**Box No. VIII Certain observations on the international application**

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

Reference is made to the following documents:

- D1: JP 57 193701 A (HITACHI SEISAKUSHO KK) 29 November 1982 (1982-11-29)
- D2: JP 58 140406 A (HITACHI SEISAKUSHO KK) 20 August 1983 (1983-08-20)
- D3: US-A-6 094 905 (FUKUYAMA ET AL) 1 August 2000 (2000-08-01)
- D4: US 2002/124570 A1 (AKIYAMA RYOU ET AL) 12 September 2002 (2002-09-12)
- D5: US-A-5 054 996 (CARRENO ET AL) 8 October 1991 (1991-10-08)

The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 1-3,8,9, and 10 is not new in the sense of Article 33(2) PCT.

Neither the claims nor the description discloses a definition about the extension of the central, intermediate, or outer portion of the disk. A man skilled in the art can just derive the information that the part close to the disk bore belongs to the central portion, that the outer portion is the part close to the outer shell of the disk and that the intermediate portion is in between central and outer portion. Therefore, no further limitation is imposed by just naming portions of the disk central, intermediate and outer portion.

The document D1 discloses (the references in parentheses applying to this document):

A disk of a disk rotor for a gas turbine comprising a central portion, an intermediate portion, an outer portion, a series of axial pass-through holes for a series of tie rods (4) and a series of slots for housing a corresponding series of vanes (implicitly given by almost every disk, except BLISK), said central portion comprises a central axial pass-through hole, a first collar (7) situated at a first end and a second collar (8) situated at a second end of the central portion, wherein the series of holes is positioned in the outer portion of the disk.

Claim 1 does not comprise any further teaching on how to obtain a high dynamic characteristics of the rotor and at the same time a sufficient useful life thereof. Therefore,

this functional feature is not limiting the scope of claim 1.

Independently of document D1, each of documents D2-D5 discloses a disk of a disk rotor for which three portions can be specified with a series of holes for tie-bolts positioned in the outer portion of the disk.

Therefore, every document D1-D4, or D5 is novelty destroying for claim 1.

Dependent claims 1-4 and 8-10 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty because they are all disclosed in document D1, see the corresponding passages cited in the search report.

The combination of the features of dependent claims 5-7 describing the number or orientation of the holes with respect to the slots for the vanes is neither known from, nor rendered obvious by, the available prior art.

**Re Item VIII**

**Certain observations on the international application**

The vague and imprecise statement "close" in claim 8 leaves the reader in doubt about the scope of protection for the corresponding features, thereby resulting in lack of clarity (Article 6 PCT) when used to interpret them.